EU

GB99/2691

The Patent Office
Concept House
Cardiff Road   REC'D 0 9 NOV 1999
Newport   WIPO   PCT
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.
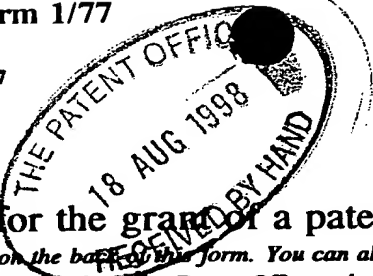
Signed   G D Court.

Dated   08 September 1999

PRIORITY DOCUMENT

SUBMITTED OR TRANSMITTED IN COMPLIANCE WITH RULE 17.1(a) OR (b)

This Page Blank (uspto)

Patents Form 1/77

Patents Act 1977
(Rule 16)

The Patent Office

18 AUG 1998

18AUG98 E384268-7 002698
P01/7700 25.00 9818022.7

Request for the grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
Gwent NP9 1RH

1.	Your reference	RSJ05870GB

2. Patent application number
(The Patent Office will fill in this part)

9818022.7

3. Full name, address and postcode of the or of each applicant *(underline all surnames)*

Madge Networks Limited
100 Lodge Lane
Chalfont St. Giles
Bucks
HP8 4AH

Patents ADP number *(if you know it)*

441 0866 001

If the applicant is a corporate body, give the country/state of its incorporation

Great Britain

4. Title of the invention

Communications Network

5. Name of your agent *(if you have one)*

GILL JENNINGS & EVERY

"Address for service" in the United Kingdom to which all correspondence should be sent *(including the postcode)*

Broadgate House
7 Eldon Street
London
EC2M 7LH

Patents ADP number *(if you know it)*

745002

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and *(if you know it)* the or each application number

Country	Priority application number *(if you know it)*	Date of filing *(day / month / year)*

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing *(day / month / year)*

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? *(Answer 'Yes' if:*

a) *any applicant named in part 3 is not an inventor*

b) *there is an inventor who is not named as an applicant, or*

c) *any named applicant is a corporate body.*

See note (d))

YES

Patents Form 1/77

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description   2

Claim(s)

Abstract

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11.	For the Applicant	I/We request the grant of a patent on the basis of this application.
	Gill Jennings & Every	Signature Date 18 August 1998

12. Name and daytime telephone number of person to contact in the United Kingdom	SKONE JAMES, Robert Edmund 0171 377 1377

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.

b) Write your answers in capital letters using black ink or you may type them.

c) If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.

d) If you have answered 'Yes' Patents Form 7/77 will need to be filed.

e) Once you have filled in the form you must remember to sign and date it.

f) For details of the fee and ways to pay please contact the Patent Office.

Communications Network

The present invention described here as Multigig Token (or just "Multigig"), provides an evolution path for Token Ring users, and provides an advance backbone for LANs based on both Token Ring and Ethernet.

The ideas apply to the backbones in LANs, based on dedicated point to point links between switches and other devices, but are also applicable to other aspects of the LAN. This provides an attractive solution for implementing a high-performance and high-functionality backbone for networks which are up to now exclusively Ethernet.

The Multigig Token of the invention is a superset of Ethernet, and specifically Gigabit Ethernet. Connections are made with 1 gigabit Multigig ports without any modification or special set-up.

This is achieved using a protocol (preferably invisible to Ethernet) to negotiate a token-ring style connection between two Multigig devices. Once this had been established, a port continues to operate exclusively in this token-ring mode until link closure. In this mode, frames are formatted in a familiar token ring style.

The Multigig mode of operation provides beyond 1 gigabit speeds. This has two variations: one where multi gigabit operation is achieved through link aggregation of single gigabit connections; secondly through the definition of a 10 gigabit standard on optical connections only.

Connections between Multigig switches operate using the token-ring mode. Multigig switches operate according to 802.1Q. Thus, frames received from Ethernet-mode ports are VLAN-tagged for transport over Multigig inter-switch links. Where a Multigig switch has two or more ports operating in Ethernet mode, the 802.1Q operation allows frames to be relayed between those ports unchanged.

Resilience and load sharing in inter-switch connections is provided, as an extension of Token Ring's

existing source routing capabilities and through the provision of redundant links.

In this way enhanced resilience beyond that achievable through spanning tree or source route rediscovery is
5 provided. Switches take over the task of selecting the best source route. Switches then reroute packets when topology change was detected, and optionally notify neighbours of topology change.

Multigig also provides effective mechanisms to support
10 bandwidth allocation and flow control.

In this case, the Ethernet Xon/Xoff protocol for flow control is unacceptable because it causes head-of-line blocking and inefficient use of inter-switch links. Multigig therefore supports a modestly extended scheme for
15 link-based flow control, in which the Xon/Xoff message specifies a simple flow identifier such as user priority or VLAN ID, or both.